HIV Infection

Virology & Trasmission

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Address : P.O. Box 49,
St. Albans,
Herts. AL1 4AX, United Kingdom
Telephone : (0)727 853869
Fax. : (0)727 846852

HIV infection ~ Clinical manifestations in adults
(For the Asian and Pacific region)

HIcA Slides 1-24 (First edition June 1993)

Dr Wendy Holmes MB BS MSc
International Health Program,
Macfarlane Burnet Centre for Medical Research,
Victoria, Australia

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WHAT THE SLIDE SET IS ABOUT

The clinical case definition and clinical manifestations of HIV infection in adults.

Virology and transmission, natural history, clinical manifestations in children, counselling, prevention strategies and precautions for health care workers are the subjects of separate slide sets.

WHO THE SLIDE SET IS FOR

Doctors who care for patients with HIV infection, or who may in the future have to do so; especially those who may be responsible for teaching others about HIV infection.

ACKNOWLEDGMENTS

I thank the patients who have given permission for this use of their photographs. We have changed the names of all patients.

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Professor Jacob John, CMC, Vellore, In

Slides 7 (2), 9, 13 (2), 14(2), 15(1), 16((2), 24(2)
AV Services, St Mary's Hospital Medica School, London W2 1PG

Slide 4, 19 (1), 14(1), 20 (1 & 2)
Photography and Illustration Centre, University College, London, UK

Slide 2
Thailand Population and Community Development Association, Thailand

Slides 10 and 12 (2)
Dr Jonathon Streeton, 141 Grey St, E Melbourne, Victoria, Australia

Slide 5, 12 (1)
Department of Medical Illustration, St Stephens Hospital, London, UK

Slide 6
Dr Stephen Green, Dept Child Health, 17 Hatton Place, Edinburgh, UK

Slide 7 (2)
Mr John A Gordon FRCS, Harare, Zimbabwe

Slide 21
Professor R Planner
Mercy Hospital, Melbourne, Victoria

Slide 22
Professor Hector MacLean
Eye and Ear Hospital, Melbourne, Victoria

Slide 24(1)
Dr James Anderson, 333 Kennington Rd, London, UK

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HOW TO USE THE SLIDE SET

Choose whether you will:

- USE THE SET TO GIVE A COMPLETE LECTURE:
  Show the slides and read the commentary straight through.
  If you do this, have both an introductory session and a discussion after the show. Use the introductory session to check that the audience has enough background information to understand the set.

  This slide set shows the clinical manifestations but this does not mean that we consider management and social issues to be less important. A slide set is a good medium to teach about clinical manifestations; but it is less suitable for teaching about counselling and social issues. You might like to arrange a discussion of management issues, using Appendix 2, after you show the slides.

- CHOOSE A FEW SELECTED SLIDES TO ILLUSTRATE YOUR OWN LECTURE: mix them with slides from other sets. You may like to take all of the TALC sets on HIV and choose which of the slides are most useful for your audience, and combine them into one or several lectures on HIV infection. The other sets are on Virology and Transmission (HIvA), Prevention and Counselling (HIeA), and HIV infection in children (HIVp).

- USE THE COMMENTARY AS A GUIDE AND SOURCE OF IDEAS: but lead your audience through the slides as your lecture. This is usually the best way to use a slide set. You may need to divide this set into two smaller parts to work through it more slowly.

Before you show the slides:

- STUDY THE SLIDES AND READ THROUGH THE TEXT: Make sure that you are familiar with the ideas in the slides before you show them to an audience, so that you can answer questions and lead discussions.
  Decide which questions you want your audience to answer and what you will leave out.

- READ THE TEACHER'S NOTES: decide which of these suggestions are helpful. Decide if there is any background material that you need to revise with the students before you show the slides.

- LOOK AT THE FURTHER INFORMATION SECTIONS: There is a lot of further information in this slide set, because the subject is new and changing fast. Advice on treatment is included in these sections.

- LOOK AT THE DISCUSSION POINTS: These can help to structure discussions so that they reach conclusions. Decide how much time you can leave for discussion. Encourage the audience to think of the relevance of their own experience to these discussion points.

- TECHNICAL TERMS: There are a large number of technical terms in the text so the set is suitable mainly for a medical audience. If you are showing the set to a non-medical audience, be ready to explain technical terms.

When you show the slides to an audience:

Ask one student to point out details in the slides that the commentary refers to. This helps you to appreciate where students find it difficult to see what the slides are supposed to show them.

- LET THE AUDIENCE TRY TO ANSWER THE QUESTIONS in the commentary. There is a lot of information with each slide, and most of it is explanatory. But where possible we have presented the information in the form of questions and answers.

- STOP FOR DISCUSSION AND CLARIFICATION: People remember things better if they talk about them.

INTRODUCTION

Infection with the Human Immunodeficiency Virus (HIV) has a wide range of clinical manifestations. We do not know the cause of all of them. Some are due to a direct effect of the virus on certain body cells, such as those of the central nervous system and gastrointestinal tract. But many clinical manifestations are the result of damage to the immune system, which leaves the body open to infection by a variety of opportunistic pathogens. Infections that are latent in the body re-activate when immunity decreases. Patients with advanced AIDS typically have multiple opportunistic infections which can be difficult to diagnose. The pattern of opportunistic infections depends on which organisms are prevalent in the environment. Reports of patients with AIDS from Thailand, India and the Philippines suggest that the range and frequency of manifestations are similar to those seen in African countries.

HIV is a new human pathogen, and new clinical features associated with the infection are still being discovered. For this reason it is important that those who care for HIV infected patients keep detailed records, so that new manifestations can be recognised and reported.

There are two human retroviruses which cause AIDS: HIV-1 and HIV-2. In this commentary we refer to HIV-1 as "HIV", for clarity. HIV-2 is less common but has been found in many parts of the world, including some Asian countries. The course of disease following infection with HIV-2 appears to be more slowly progressive and less severe than that with HIV-1. Infection with both viruses causes aggressive disease.

It is not possible to illustrate all the clinical manifestations of HIV related disease in 24 slides. So in this set we draw attention to the parts of the body which most commonly show signs of HIV related disease. These are the mouth, the skin, the lungs, the gastrointestinal tract, the genitals and the central nervous system. Other clinical manifestations, which we have not been able to illustrate, are discussed in Appendix 1.

Management of patients with HIV related disease needs much discussion. Decisions on management policy involve ethical and social as well as medical issues. It is important to make management policy decisions as early as possible in the course of the epidemic. This enables health planners to allocate available resources in a rational way. We present discussion points on these difficult issues in Appendix 2. We suggest that, after showing the slides, you allow time for a discussion of possible management policies. Management guidelines are available from WHO. See the list of resources in Appendix 4.

Teacher's Note

This slide set assumes that the audience is familiar with the accompanying set "HIV Infection - Virology and Transmission". We recommend that you study or revise the material contained in that set before you study this one.

Slide 1 Clinical case definition of AIDS in adults

The Acquired Immune Deficiency Syndrome (AIDS) is the end stage of infection with HIV. This slide shows the World Health Organisation definition of AIDS, based on clinical criteria. AIDS can be diagnosed if a patient has at least two of the major signs and at least one of the minor signs. The patient must not have any other known cause of immune suppression. The presence of generalised Kaposi's sarcoma or cryptococcal meningitis by themselves indicate the diagnosis of AIDS.

CDC Definition
AIDS was first defined by the US Centres for Disease Control in 1982, before the discovery of HIV. That definition is based on a list of diseases which indicate immune deficiency. Since then the CDC definition has been modified, first to include laboratory evidence of HIV infection, and later to include more indicator diseases and a low T4 white cell count.

Clinical definition
The **clinical** definition on this slide was developed at a workshop in Bangui, Central African Republic, in 1985.

Q. Why do you think that it was necessary to develop a clinical case definition of AIDS?

A. In many areas where the incidence of AIDS is increasing, there are no laboratory facilities for the diagnosis of indicator diseases. Also, many health workers do not have access to tests for HIV infection.

Most of the manifestations of HIV infection are non specific, so it is difficult to develop an accurate clinical definition of AIDS. Researchers have evaluated this WHO clinical definition in several African countries. They found that it does not reliably predict which patients have a positive HIV antibody test. Many countries use this definition, but some use their own modified version.

Natural history
Most people infected with HIV remain well for some years, although there may be an acute illness at the time of seroconversion. By five years after infection most people develop symptoms and signs due to immune deficiency. We say that they have "HIV related illness". Studies to date show that about 60% of adults infected with HIV will develop AIDS within 12 to 13 years of infection. Experts believe that most HIV infected people will eventually develop AIDS. Studies show that adults of different race, sex and geographical area have similar rates of progression to AIDS.

The division of symptomatic HIV infection into "AIDS" and other categories of HIV related illness occurred because AIDS was described before the discovery of HIV. The division is not needed in the management or counselling of patients. However, it is helpful for epidemiological reporting in areas where serological testing is not available, and is a guide to prognosis. People who meet the criteria for a diagnosis of AIDS almost always die. The outcome for patients with HIV related illness is less certain. People with AIDS in developing countries usually survive for only 6 months or less.

Slide 1 Clinical case definition of AIDS in adults (Continued)

Differential diagnosis

Q. With which disease do you think that AIDS is most often confused?

A. With tuberculosis.

Q. Why are tuberculosis and HIV infection confused?

A. Tuberculosis has many clinical features similar to HIV infection, particularly: weight loss, chronic fever, persistent cough and generalised lymphadenopathy. Also TB and HIV infection are often found together.

Some experts have suggested that, for patients with tuberculosis, the minor signs, "persistent cough" and "generalised lymphadenopathy" should be removed from the definition of AIDS.

Psychiatric illness, especially depression, can also be confused with HIV related illness. Features in common are multiple somatic symptoms, loss of weight, weakness and mood changes.

Further Information

The changing definition of AIDS

In industrialised countries people infected with HIV now live longer because of improvements in treatments. Prophylaxis and treatment for opportunistic infections have led to a decrease in incidence of AIDS defining illnesses.

Therefore many people with late disease and low CD4 (T4) cell counts have few symptoms and did not meet the CDC criteria for a diagnosis of AIDS (CD4 cells are the white cells that decrease in HIV infection).

For this reason the new 1993 CDC definition includes a CD4 cell count < 200/ul (MMWR, Dec 18, 1992). It also includes pulmonary tuberculosis, recurrent pneumonia, and invasive cervical carcinoma in HIV infected individuals as diseases which indicate a diagnosis of AIDS. Reasons for the expansion of the definition were to include diseases seen commonly in women and non-homosexual males, and to allow more HIV infected people in the USA to qualify for treatment and care. However these people may now experience psychological and social problems because of the "AIDS" label.

In 1993 the European Centre for the Epidemiological Monitoring of AIDS adopted a wider definition of AIDS that includes the new clinical AIDS defining conditions of the 1993 CDC definition, but does not include a low CD4 cell count.

Some workers prefer not to use the term "AIDS". They use the categories: "seroconversion", and "early", "intermediate" and "advanced" HIV disease.

Changes in the definition result in difficulties for epidemiological research. In particular it complicates the comparison of AIDS surveillance data collected in different years, and in different regions.

Slide 2 Gastrointestinal manifestations

Q. What do you notice about this young man?

A. He is very thin: we can see the outline of his bones. He also has a papular skin rash all over his trunk.

Q. What are the likely causes of such severe weight loss?

A. This weight loss might be caused by malnutrition, by a severe debilitating condition such as a malignancy, or tuberculosis; or by AIDS.

This young man, Anusorn, from Thailand, presented with loss of weight, tiredness, diarrhoea, and intermittent fever. He also had oral thrush and an itchy rash. Two years previously he had suffered a brief illness similar to glandular fever.

He did not gain weight despite adequate food and treatment for infections. The HIV antibody test was positive, and Anusorn died one month after diagnosis.

Severe weight loss with chronic diarrhoea is a common manifestation of HIV infection. The cause is not certain. Where gastrointestinal pathogens such as *Giardia lamblia* and *Entamoeba histolytica* are common, they will be found in the stools. But they may not be the cause of the chronic diarrhoea, which may continue after treatment. HIV can infect gastrointestinal epithelial cells, so the diarrhoea may be due to a direct effect of the virus.
Malabsorption can occur early in HIV infection. Severe nutritional deficiencies are common in AIDS.

Good nutrition with adequate intake of calories, vitamins, and minerals is important for people infected with HIV.

Further Information

Treatment:
During episodes of diarrhoea, fluid replacement may be necessary. Symptomatic treatment with anti-motility agents such as codeine or loperamide can make the patient more comfortable.

Other gastrointestinal manifestations:
Although HIV may be the cause of the diarrhoea, it is important to look for, and to treat, secondary infections.
Cytomegalovirus and ***herpes simplex*** virus can both cause focal or diffuse ulceration from the mouth to the anus. *Herpes simplex* usually causes mucocutaneous lesions at the upper and lower ends of the intestinal tract. *CMV* is associated with a syndrome which mimics acute inflammatory bowel disease. There is abdominal pain, fever and diarrhoea. Toxic dilatation, perforation and haemorrhage may occur. The diagnosis is not easy as it requires biopsy and culture. Ulceration of the oesophagus causes retrosternal chest pain and dysphagia.
Cryptosporidium, *Isospora belli* and ***microsporidia*** are protozoal causes of diarrhoea in HIV infected patients. *Cryptosporidium* is common in animals. In HIV infected hosts it may cause intermittent or persistent diarrhoea. The stools may be loose or watery with colic and severe fluid and electrolyte loss. Where facilities are available the diagnosis is made by finding the cysts in the stools by a direct, modified acid fast stain. There is no effective treatment for this parasite at present. There are no reports that people with HIV are more susceptible to **amoebic dysentery.**
Disseminated infection with ***Mycobacterium tuberculosis*** **and** ***atypical mycobacteria*** occurs in AIDS. Gastrointestinal infection may be associated with fever, weight loss, diarrhoea and malabsorption. Diagnosis is by acid fast staining of the stool or biopsy material and culture.
Kaposi's sarcoma may affect the GI tract. Complications are unusual but include ulceration, haemorrhage and diarrhoea. A protein-losing enteropathy may also occur.

Slide 3 Persistent generalised lymphadenopathy

Q. What do you notice about the neck of this man?

A. He has enlarged cervical lymph nodes. You can see the gland behind his ear most easily. He also has enlarged occipital, mastoid, submental, and anterior cervical glands, but these are difficult to see.

One of the common ways in which HIV infection presents is with widespread lymph node enlargement. The syndrome is called **persistent generalised lymphadenopathy, or PGL.**

The cervical, axillary and inguinal glands, and the epitrochlear glands inside the elbow, are often palpable. The enlargement is usually symmetrical, and the glands are typically firm, discrete and not tender. They are not usually very large and, as in this patient, they may be difficult to see. Some patients with PGL also have an enlarged spleen.

The **definition of PGL** states that:

- the enlarged lymph nodes should be at least 1 cm in diameter;
- they should be found in two or more sites (not including the inguinal region);
- they should persist for at least three months;
- there should be no current illness or medication known to produce enlarged nodes.

Many people suffer an acute illness of one to two weeks duration, at the time that they develop antibodies to HIV (seroconversion). Generalised enlargement of the lymph nodes is a common feature, in addition to fever, fatigue, papular rash, pharyngitis and joint pains.

Even in those who do not experience an acute primary HIV illness, PGL may develop early in the course of HIV infection. The patient may not be aware of the lymph gland enlargement so it is important to examine the axillae of every patient. If a patient has generalised lymphadenopathy without an obvious cause look for other symptoms and signs suggestive of HIV infection

Q. What are some other causes of enlarged lymph nodes?

A. Tuberculosis
Syphilis
Infectious mononucleosis (EB virus);
Cytomegalovirus infection
Lymphomas and leukaemia
Kaposi sarcoma;
Toxoplasmosis

When the lymph node enlargement is typical of PGL and the patient is HIV antibody positive, it is not necessary to biopsy the glands. It is important to biopsy if there is:

- assymetrical or painful enlargement of nodes;
- sudden increase in size;
- constitutional symptoms such as fever, night sweats or weight loss; or hilar lymphadenopathy.

Further information

Histology

Lymph node biopsy in HIV related PGL shows non-specific reactive hyperplasia. Many causes of lymph node enlargement result in these histological changes.

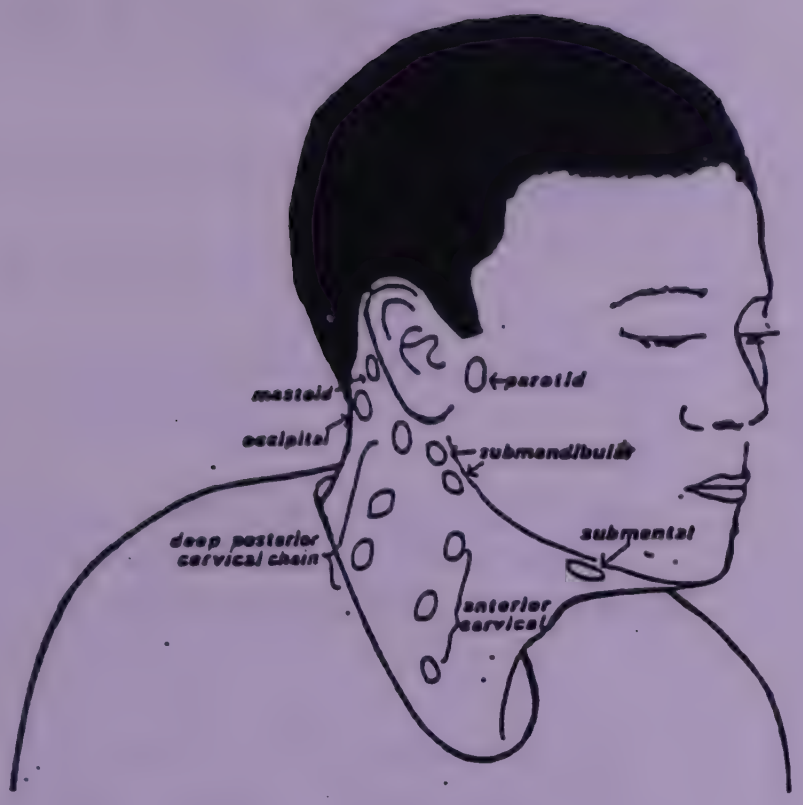


Figure 1. The main sites of the cervical glands

ORAL MANIFESTATIONS

Slide 4 Oral candidiasis

It is an important part of the routine of any clinical examination to look in the patient's mouth. Patients with HIV infection often have abnormalities in their mouths. This patient complained of a sore mouth.

Q. What do you notice that is abnormal?

A. The hard palate has a white exudate on a red background. The buccal mucosa also has a white coating.

Q. What do you think is the diagnosis?

A. Oral candidiasis, or thrush. The tongue and buccal mucosa may be coated with white plaques, or they may be beefy red.

Oral candidiasis is a very common feature of HIV infection, especially when the CD4 cell count falls below 500/ul.

In prospective studies of patients with HIV related illness, oral candidiasis indicates a poor prognosis.

Patients who experience the acute seroconversion HIV illness often have oral candidiasis, which improves rapidly when they recover.

In the absence of another specific cause, such as diabetes, oral candidiasis in adults is highly predictive of HIV infection.

Oral candidiasis can also cause angular stomatitis. It may be associated with pharyngeal and oesophageal candidiasis. In patients with AIDS, oral candidiasis is a marker for oesophageal candidiasis.

Because *Candida albicans* can cause a decrease in T cells, candidiasis itself may make immune deficiency worse.

Further Information: Frequency of oral candidiasis

In a study of hospital patients who were HIV infected in Thailand, 60% of patients had oral candidiasis. In a similar study in Bombay, India, 41% of hospital patients with AIDS were found to have oral candidiasis.

Oesophageal candidiasis

AIDS patients may present with retrosternal chest pain and discomfort when swallowing. The most common cause of this oesophagitis is candidiasis. A barium swallow may show the plaques of candida. However barium swallow cannot distinguish whether oesophagitis is due to candida, CMV or HSV.

Treatment

Oral candidiasis: Topical antifungal drugs such as nystatin suspension are usually effective, but oral ketaconazole is sometimes necessary. In many parts of the world Gentian Violet paint (crystal violet 0.5% in water) may be all that is available. It is effective, but messy. Warn the patients that Gentian Violet stains clothes and skin.

Oesophageal candidiasis: Ketoconazole is the treatment of choice, if it is available. Other anti-fungals such as nystatin and amphotericin B are also effective.

Slide 5 Oral Hairy Leukoplakia

Q. What abnormality do you notice on the side of this man's tongue?

A. There are white projections, or corrugations, on the side of the tongue which give it a ribbed appearance.

This is a condition called hairy leukoplakia. The white warty like projections occur on the lateral aspects of the tongue and sometimes on the mucosa of the cheeks. It is found only in patients with HIV infection, so it is a diagnostic sign. It is usually painless. We do not know the cause, but electron microscope studies suggest that it may be viral in origin. It tends to occur late in the course of HIV disease.

Oral hairy leukoplakia differs from ordinary leukoplakia in which flat white patches may occur on any part of the buccal mucosa. Ordinary leukoplakia is a result of chronic irritation and may become malignant.

Slide 6 Early lesion of Kaposi sarcoma

This slide shows a patient's hard palate.

Q. What do you see there?

A. There is a purple, plaque-like lesion on one side.

This is an early lesion of AIDS related Kaposi sarcoma (KS). These lesions often appear just above the second molar teeth.

The lesions of AIDS related KS may present in many different sites. Other common places are the penis, the groin, the medial third of the lower eyelid and the tip of the nose.

KS is a tumour that arises from the endothelium of blood vessels. In tropical Africa the tumour has been endemic for many decades. In the endemic, classical form the tumour presents on the hands or feet and grows slowly. The patient is generally well.

A new form of KS was seen in American patients in 1981 and in African countries from 1983. It is much more severe and aggressive than the endemic form. The lesions are more widespread; constitutional symptoms are worse; and there is often associated oedema.

This is called aggressive or fulminating KS and it is related to HIV infection. This unusual malignancy is one of the indicators of AIDS.

Further Information

Aetiology
In Europe and the USA, KS affects homosexual people with AIDS more commonly than people with AIDS from other risk groups. Also some homosexuals who are not infected with HIV have developed KS. This has led some virologists to believe that an unknown virus which is spread by the faecal-oral route causes KS.

Treatment
The availability of treatment for KS varies. Treatment does not change the prognosis of the condition and is often unsuccessful. Patients may benefit psychologically from treatment of unsightly lesions. Excision is the most simple method. One dose of irradiation may treat localised nodules. Doctors may use cytotoxic therapy in patients with rapidly progressive systemic KS. An initial response to chemotherapy with Actinomycin D and Vincristine is seen in 60% of patients but often ceases after a few weeks. However this therapy reduces the patient's immunity further. Remissions on treatment are temporary and incomplete.

Summary

Oral manifestations of HIV infection are common, so always look in a patient's mouth. You may find opportunistic infections, including:

- oral candidiasis
- ulcers, which may be herpetic, aphthous or bacterial
- viral warts;

You may find specific manifestations, such as:

- KS
- oral hairy leukoplakia

You may also find a number of non-specific conditions, such as:

- severe dental caries
- dental abscesses
- gingivitis
- lip depigmentation
- coated tongue.

Encourage patients who are HIV positive to keep their mouths clean and to brush their teeth after meals.

Slide 7 Kaposi sarcoma

Q. What do you notice on the hand of the patient in picture 1?

A. There is a round nodule, and beside it is a flat pigmented lesion, or plaque. The hand is oedematous.

The nodule is firm, and painless.

Q. What do you think that the nodule might be?

A. This is a typical early lesion of AIDS related KS.

Q. What do you notice about the legs of the man in picture 1?

A. This man has a blotchy purple rash on the lower part of his legs. His left leg is very swollen.

Q. What do you think the diagnosis might be?

A. This man has AIDS related KS with lymphatic involvement.

The cherry-like nodules have joined together, and they may ulcerate. There are some plaque-like lesions, associated with oedema.

Q. What other diagnosis might you think of?

A. Lymphatic filariasis causes lymphatic blockage with chronic oedema. KS can look like a number of other conditions - including malignant melanoma, pyogenic granuloma and dermatofibroma.

KS is rarely the cause of death in people with AIDS, who usually die of multiple opportunistic infections. However, severe weight loss, oedema of head or trunk, pulmonary infiltration and encephalopathy are poor prognostic signs.

Nodules and plaques may appear anywhere on the body. At least half the patients have no peripheral nodules. Pleural effusions are detectable in about a quarter of patients with KS. Others develop respiratory distress associated with infiltration of the perihilar and lower zones on chest X-ray.

Further Information

Histology:
The histology of a typical nodule shows collections of spindle cells in the dermis which trap red blood cells. There is an associated deposition of haemosiderin.

Slide 8 Lymphoma

Q. What do you see in this man's neck?

A. He has a large swelling on both sides of his neck. The swelling is assymetrical.

These are enlarged lymph glands, which were painful.

Q. What features suggest that this is not PGL?

Teacher's Note

Encourage the audience to recall the features of the cervical glands in slide 3, and to compare them with the features visible here.

A.
- The lymph nodes are very much enlarged;
- the enlargement is assymmetrical;
- the gland is painful.

These three features suggest that the gland enlargement is not PGL, and they are indications for biopsy. Biopsy in this case showed a malignant lymphoma.

After KS, malignant lymphoma is the commonest malignant tumour affecting people with AIDS. Patients usually present, however, not with lymph node involvement, but with signs of infiltration in other sites, such as the central nervous system, the bone marrow, the gastrointestinal tract and mucocutaneous sites. They may present at a late stage, with constitutional symptoms such as fever and weight loss.

The prognosis of HIV related lymphoma is poor; mean survival is less than one year.

Lymphoma of the CNS can be difficult to distinguish from both HIV neurological disease and other space occupying CNS lesions such as toxoplasmosis. Researchers believe that Epstein Barr virus is the cause of HIV associated lymphoma.

Further information

Lymphoma most commonly occurs late in HIV disease with low CD4 count. In Europe and the USA, lymphomas affect homosexuals more commonly than other risk groups such as haemophiliacs and drug abusers. In developing countries lymphoma is rare, perhaps because people do not live long enough to develop lymphoma, or because of lack of diagnosis.

Histology: The histology of this lesion showed a poorly differentiated, diffuse non-Hodgkin's malignant lymphoma. Most HIV related lymphomas are extranodal high-grade B cell lymphomas.

Treatment: Intravenous multiple agent chemotherapy regimens can give complete initial remission. There is a high relapse rate with poor response to second line chemotherapy. Treatment includes CNS irradiation or intrathecal chemotherapy. Survival of these patients is poor. In the UK, doctors treat patients aggressively with cytotoxic regimens only if the lymphoma appears before opportunistic infections.

Figure 2. Lymphoma in the neck

Slide 9 Tuberculosis

This is the chest X-ray of a young man who presented with a history of loss of weight, productive cough and fever for one month.

Q. What abnormalities do you see in his chest X-ray?

A. There are diffuse, soft-looking opacities in both lung fields, more on the right than on the left. There are cavities in the right lower lobe. There is enlargement of the hilar nodes on the left.

Q. What condition does this appearance suggest?

A. It suggests pulmonary tuberculosis. The soft looking opacities suggest that the tuberculosis is of recent onset. The cavities imply that there is active disease.

AIDS can present with florid pulmonary tuberculosis. The X-ray appearances are often atypical. As in this slide, the middle or lower lobes are commonly affected, and the upper lobes are often clear. (Usually in tuberculosis, the upper lobes are more severely affected.) Enlargement of hilar lymph nodes, and effusions, are common.

This man had a positive HIV antibody test, and acid fast tubercle bacilli were found in his sputum. He has AIDS and tuberculosis. His tuberculin test was negative.

Q. Why do you think that his tuberculin test was negative?

Teacher's Note

Ask the audience to recall what was said in the slide HIVv7 about the effect of HIV infection on the immune response. Remind them about the three characteristic findings of decreased lymphocytes, increased gammaglobulin and negative cutaneous delayed hypersensitivity reactions.

A. The tuberculin test depends on a cutaneous delayed hypersensitivity reaction. In patients with HIV infection the skin reaction may be suppressed.

Tuberculosis infects people with normal immunity; but it behaves as an opportunistic infection in AIDS patients. It is the commonest opportunistic infection in Asian countries where tuberculosis is common in the general population. Both primary infection with tuberculosis and reactivation of latent tuberculosis infection are common in HIV infected people. In countries where tuberculosis is common, the incidence of tuberculosis is increasing in the general population as well as among those infected with HIV.

Slide 10 Tuberculosis

Q. What diagnosis does this chest X-ray appearance suggest?

A. Miliary tuberculosis.

The presentation of tuberculosis in HIV infected patients is often atypical. Mycobacteria may disseminate through the body, causing miliary tuberculosis or meningitis. Tuberculous lymphadenopathy is common. It is clinically similar to HIV related lymphadenopathy. Involvement of the genitourinary tract, bone marrow and central nervous system is also common. Standard treatment regimes are usually effective in AIDS patients with pulmonary TB. Relapse may be common when treatment is stopped.

Further information

Tuberculous lymphadenopathy may resemble HIV related lymphadenopathy. Indications for biopsy are listed in slide 3. Doctors in Zambia studied the appearance of the cut surface of biopsied lymph nodes to the naked eye (that is, without using a microscope). They found that they could see tuberculous caseation in 42.5% and tuberculomata in 34.5%. They concluded that histology is not essential for diagnosis.

Atypical mycobacteria

Patients with AIDS may become infected with atypical mycobacteri, such as M. Xenope, M. Kansasii, M. Avian-intracellulare. These infections produce minor symptoms and they are difficult to treat.

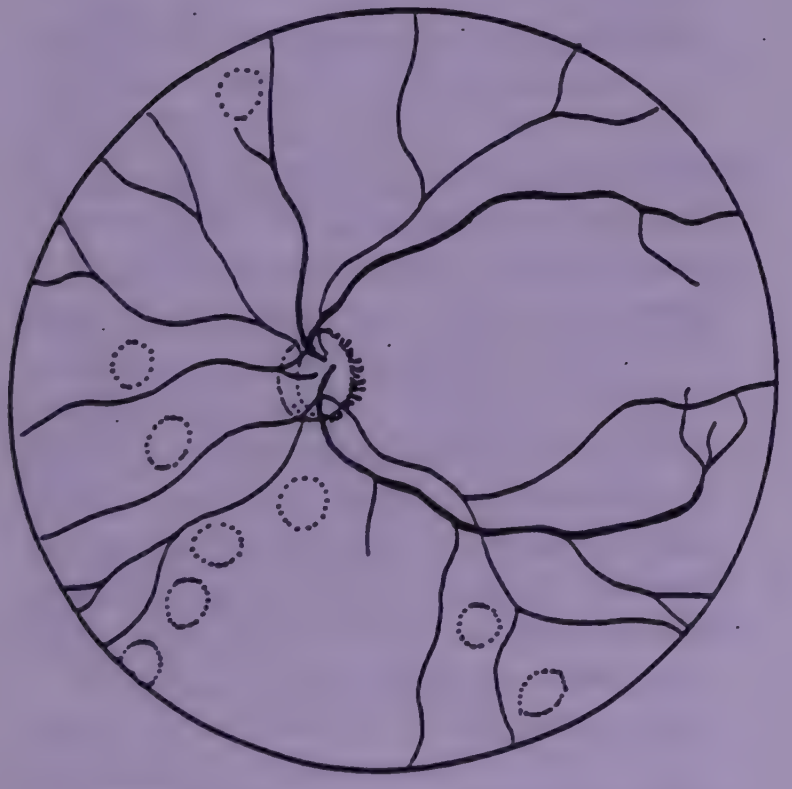


Figure 3. This is a view of the fundus of the eye through an ophthalmoscope. The pupil has been dilated with 0.25% atropine ointment. The small round spots on the retina are choroidal (retinal) tubercles. Their presence makes the diagnosis of miliary tuberculosis certain.

Slide 11 Drug reaction

This man has HIV infection and tuberculosis. He has been treated with anti-tuberculous drugs for two weeks.

Q. What do you notice about this man's face?

A. His face is swollen. There are many vesicles.

Q. What do you think is the cause of this appearance.

A. Stevens-Johnson syndrome. This is a reaction to one of the anti-tuberculous drugs.

Q. Which drugs are most likely to cause this reaction?

A. Thiacetazone and streptomycin.

Drug reactions are more common in AIDS patients, and are most commonly due to thiacetazone and streptomycin. However patients may react badly to any anti-tuberculous drugs. Reactions may vary from a mild itchy rash to a severe Stevens-Johnson syndrome, such as this. This man also has a fever, enlarged lymph nodes, liver and spleen. And he has ulcers on the mucous membranes of his mouth, eyes and genitals.

Further Information

Management of reactions:
If a severe reaction occurs, stop all drugs. If the patient cannot swallow well they will need intravenous fluids. Give prednisolone 15 mgs three times daily. Reduce the dose gradually as the patient improves.
When the reaction has disappeared start to give anti-tuberculous drugs again, one at a time. Try thiacetazone and streptomycin last. Start giving test doses as shown in the table.

Challenge doses for detecting hypersensitivity:

Drug	Day 1	Day 2
Isoniazid	50 mgs	300 mgs
Rifampicin	75 mgs	300 mgs
Pyrazinamide	50 mgs	1.0 gm
Ethambutol	100 mgs	500 mgs
Thiacetazone	25 mgs	50 mgs
Streptomycin	125 mgs	500 mgs

The reaction is usually a slight skin rash or fever which starts within 2 - 3 hours. If possible, give a different anti-tuberculous drug instead of the one that you find caused the reaction. If you do not have alternative drugs, it is possible to slowly desensitise the patient to the drug that they are sensitive to. To do this begin with a tenth of the normal dose and slowly increase the dose each day. If a mild reaction occurs continue the same dose for another day. If a severe reaction occurs make every effort to obtain an alternative drug.

Discussion Points

Teacher's Note

The problem of an increase in tuberculosis in the wake of the HIV epidemic is so serious that you may feel you want to encourage a discussion about the implications. The following questions and notes may stimulate comments.

- How common is tuberculosis in your area?
- What control measures are in place?
- Could detection and treatment of cases be improved?
- Do health professionals in the area need further training about tuberculosis, especially about the more unusual presentations?
- What is the potential for the development of resistant organisms in your area? Is treatment often intermittent or inadequate?

Every year between 6 - 8 million people world-wide develop tuberculosis and 2 - 3 million die of the disease. WHO estimate that 3 million people have dual infection with TB and HIV. During the next decade there is a need for researchers to give this disease high priority for research and development.

Clinical tuberculosis may be expected to develop in about 30% of HIV antibody positive subjects with past tuberculous infection. There will also be cases of primary infection in HIV infected patients. In addition, spread of tuberculosis will occur to non HIV infected people in the population.

Between 1985 and 1990, the average annual risk of tuberculous infection (ie the probability that any person will be infected or reinfected with M. tuberculosis in 1 year) was estimated to be 1.0 - 2.0% in Asia. If the number of cases of HIV infection continues to rise in Asia in the 1990s it can be anticipated that, like Africa, Asian countries will experience a major problem of 'dual infection'. Anti-tuberculous chemotherapy and BCG vaccination of children are among the most cost-effective health interventions available in countries with high risks of infection.

A study in Zimbabwe indicates a very high mortality in HIV positive patients who present with tuberculosis. The poor prognosis is associated with a low CD4 count at diagnosis. Tuberculosis may suppress lymphocyte numbers, and so worsen HIV-related immunosuppression. Treatment seems to prevent this effect so early diagnosis of tuberculosis is important.

In Africa doctors are evaluating new short intensive treatment regimes. There has been much discussion about the best way to manage the epidemic of tuberculosis that follows the spread of HIV. The International Union Against Tuberculosis and Lung Disease (IUATLD) recently organised a seminar about this problem in Harare, Zimbabwe. They found certain factors to be important for success:

- the establishment of a national TB programme;
- government commitment to provide a central unit to guide that programme;
- the integration of diagnosis and treatment into the general health structure throughout the country;
- diagnosis by a network of microscopy centres with quality control;
- a secure system of supplies; and
- proper recording and reporting of cases.

After the establishment of a national programme success depends on the introduction of short-course therapy. This should consist of, for new infectious cases, 4 drugs, (which will always include isoniazid, rifampicin and pyrazinamide) for 2 months of the initial intensive phase, followed by isoniazid and thiacetazone (or ethambutol) for 6 months in the continuation phase. Also necessary are:

- staff training before introduction of the regimen;
- a guarantee that the initial intensive phase of treatment is directly observed; and
- introduction of the regimen in a stepwise fashion throughout the country.

IUATLD believe that this is the best way to minimise the increased numbers of infectious TB patients caused by the HIV epidemic.

Slide 12.1 Pneumocystis carinii pneumonia

Q. What abnormalities do you see in chest X-ray 1?

A. There is diffuse symmetrical interstitial shadowing.

This patient has ***Pneumocystis carinii*** **pneumonia (Pcp).**

Pcp is one of the major opportunistic infections found in patients with HIV infection. It can occur as an early or late complication of AIDS.

Pneumocystis carinii has characteristics of both protozoa and fungi. It does not usually cause lung infection in people who have normal immunity. It may infect the lungs in patients with immune deficiency due to any cause. 85% of lung infections in AIDS patients in Europe are due to Pcp. It is less common in developing countries, where tuberculosis and fungal infections are more common opportunistic infections.

Q. What are the symptoms and signs of *Pneumocystis carinii* pneumonia?

A. The symptoms include a history of several weeks of breathlessness; and dry, non-productive cough. Patients often complain that they cannot tak`e a deep breath. Headache is common but pleuritic pain is unusual.

On examination, signs include fever and tachypnoea at rest. On auscultation the chest often sounds clear.

Early in the course of the infection the chest X-ray may be normal. Later the typical, though non-specific, changes that you see here may develop.

Accurate confirmation of the diagnosis requires specialised facilities. So it is often necessary to treat the patient for Pcp when you suspect the diagnosis from the history and examination.

Further Information

Diagnosis
The diagnosis of Pcp can only be confirmed where facilities for bronchoscopy are available. Fibreoptic bronchoscopy with alveolar lavage to provide cells for cytology, or transbronchial biopsy, is necessary.

Treatment
High dose cotrimoxazole is an effective treatment. Cotrimoxazole is well absorbed orally. The dose is 4 tablets, 3 times a day (15-20 mgs of the trimethoprim component per Kg body weight per day). One tablet of cotrimoxazole contains 400 mgs sulphamethoxazole and 80 mgs trimethoprim). Adverse reactions to cotrimoxazole are very common in AIDS patients. They include rashes, nausea, febrile reactions and cytopenia. Give prochlorperazine for nausea and folic acid to prevent cytopenia.

Prophylaxis
You can reduce the risk of Pcp by giving prophylactic cotrimoxazole 2 tablets per day. Patients who have had Pcp; have CD4 cell counts below 250/ul; have other AIDS opportunistic infections or are taking corticosteroids will benefit from prophylaxis.

Doctors in Europe have used weekly Fansidar (pyrimethamine-sulphadoxine) as prophylaxis against Pcp. In malarious areas, Fansidar is used in the treatment of chloroquine resistant malaria. The use of Fansidar as Pcp prophylaxis in malarious areas could encourage the emergence of resistant malaria parasites, so do not use Fansidar for prophylaxis in malarious areas.

Slide 12.2 Bacterial pneumonia

Q. What abnormalities do you see in chest X-ray 2?

A. There is a dense shadow in the right middle and lower zones which suggests consolidation. The right diaphragm is raised and the trachea is deviated to the right which suggest collapse of a lobe on the right.

Q. What do you think is the diagnosis?

A. Pneumonia - most likely bacterial.

Lobar pneumonia caused by *Streptococcus pneumoniae* and *Haemophilus influenzae* occurs more commonly in people with HIV than the general population. Other bacteria that cause pneumonia include *Staphylococcus aureus, Klebsiella pneumoniae* and *E. Coli.* The presentation is the same as in uninfected patients, with fever, cough and sometimes pleuritic pain.

Further Information

Treatment
Treat with benzylpenicillin six-hourly, or, if the patient is not severely ill, procaine penicillin daily.

Other causes of pulmonary manifestations of HIV infection:

Cytomegalovirus is another common pulmonary pathogen in AIDS patients. Infection with CMV usually occurs with *Pneumocystis carinii* infection. Patients with these mixed infections usually recover with cotrimoxazole. The chest radiograph is similar to that of Pcp.

Fungal pulmonary infections are not common. Treatment is with Amphotericin B.

Kaposi's sarcoma often affects the lungs but it rarely causes symptoms.

Slide 13.1 Bacterial skin infection

Picture 1 shows the leg of a patient with HIV infection.

Q. What abnormalities do you see?

A. The lower leg is swollen and red. There is an ulcerated area with an exudate of pus and blood. Some of the skin near the ulcers looks recently healed.

This patient has had a chronic bacterial skin infection which improved with treatment but soon relapsed.

Bacterial infections of all sorts are more common in patients who have reduced immunity due to HIV. For example, they are more likely to suffer from pyomyositis, abscesses, osteomyelitis and acute arthritis. Post-operative wound infections are also more common in these patients. Consider antibiotic prophylaxis, and observe closely after operation. Ensure that nurses dress wounds with strict aseptic technique. Septicaemia is also common. Consider bacteria such as Salmonella and Staphyloccus aureus.

Skin infections like this are very common in those without HIV infection. As with most other manifestations of HIV infection this is a non-specific condition. Because of this non-specific nature of many presentations with HIV related illness it is important always to take a good history and to examine the patient carefully.

Slide 13.2 Herpes simplex

The young woman in picture 2 presented with a painful rash around her eye.

Q. What do you notice about the rash?

A. There are many small vesicles (blisters). The skin is red and the eyelid is swollen.

Q. What do you think is the diagnosis?

A. Herpes simplex.

The lips and the genitals are the most common sites for the lesions of herpes simplex but herpes simplex may affect any part of the skin surface. It may be recurrent at one site. In patients with HIV infection, herpes simplex lesions are more severe, more persistent, and they recur more frequently than normal.

Q. What other diagnosis might you think of?

A. Shingles (Herpes zoster).

The rash of shingles has a similar appearance. After chicken-pox, the herpes zoster virus remains latent in the sensory ganglia. Years later the virus may reactivate to cause shingles. Shingles causes pain followed by a vesicular rash over the skin supplied by that nerve.

Q. How do we know that this is herpes simplex and not herpes zoster of the ophthalmic division of the trigeminal nerve?

A. The rash in this picture does not affect the skin supplied by the ophthalmic nerve. The rash extends below the eye but does not affect the skin above the eyebrow.

Slide 14.1 Herpes simplex - secondary infection

The young man in picture 1 presented with a rash on his upper lip.

Q. Describe the appearance of the lesion.

A. There are small vesicles (blisters), ulcers and a yellow crusting exudate.

Q. What do you think is the diagnosis?

A. *Herpes simplex* with secondary bacterial infection.

On examination the doctor found that the young man had generalised enlargement of the lymph nodes and an ulcer on his penis. He counselled the young man, and, with his consent, tested his blood for HIV antibodies. The result was positive.

The doctor counselled the patient again and told him about a local HIV support group.

Secondary infection is common in HIV infected people. Apply an antiseptic cream, such as chlorhexidine, to prevent bacterial infection.

Figure 4. Hyperpigmented scars of healed *herpes zoster*

Slide 14.2 Shingles

The man in picture 2 complained that he had pain around the left side of his abdomen for three days before this rash appeared.

Q. Describe the rash.

A. There are shiny vesicles in a well defined area on one side of the man's lower trunk.

Q. What is the diagnosis?

A. This is the typical appearance of shingles *(herpes zoster)*

Shingles occurs most commonly in older people. Now, however it is a common early manifestation in younger people infected with HIV.

As we see here, the rash is usually confined to the skin supplied by one nerve root. The most frequently involved dermatomes are those of the trunk and the ophthalmic division of the trigeminal nerve. In immune deficient patients disseminated herpes zoster may occur. The patient appears to have the spots of chicken pox and the typical shingles rash. The rash usually heals in about 2 weeks, and often leaves hypo - or hyper-pigmented scars.

In a young adult, a history of shingles within the last 5 years strongly predicts HIV infection. Patients may not at first give a clear history of the rash, even if it is recent. Always examine for scars, and ask specific questions.

Further Information

Treatment of shingles: It is best to leave the rash exposed. Analgesic preparations containing paracetamol and codeine are useful. Shingles is a very painful condition. Apply an antiseptic solution to prevent secondary bacterial infection, which may be severe in immune deficient patients.

Slide 15.1 Shingles

The man in picture 1 has a rash on his thigh.

Q. What do you think this is?

A. Shingles

Yes. Shingles can occur on many parts of the body - the trunk, the shoulder, the thigh and the forehead including the upper eyelid, are all common sites.

This is the third time that this man has suffered from an attack of shingles. People with reduced immunity due to HIV may suffer from painful recurrent attacks.

Q. What do you notice on his penis?

A. There is a scar from a healed ulcer. Many people infected with HIV have a history of genital ulcers.

Slide 15.2 Molluscum contagiosum

The man in picture 2 has AIDS.

Q. What abnormality do you see on his face?

A. There are a number of discrete raised lesions. Some of the lesions look like small craters. These lesions are due to infection with *Molluscum contagiosum,* which is an unusually large virus. The typical lesions are shiny umbilicated papules about 2 to 3 millimetres in diameter. They tend to occur in groups, especially around body flexures.

Usually, *Molluscum contagiosum* is more common in children than in adults. It is especially common in children with eczema. The infection sometimes appears on the genitalia of sexually active young people. However it is now seen as an opportunistic infection in people with HIV infection, when it may be severe, and often appears on the face.

Further information

Treatment
The lesions can be treated with local application of phenol, but often recur.

Slide 16.1 & 2 Fungal nail infections

Q. What do you notice about the finger nails in picture 1?

A. The nails are thickened and white and are separating from the nail bed.

Q. Describe the abnormalities of the nails in picture 2.

A. The nails are thickened and ridged. The nail fold is swollen, or bossed.

Q. What is the cause of these appearances?

A. Chronic fungal infection.

Fungal infections of the nails are called onychomycoses. In picture 1a the fungus is tinea (dermatophyte). The fungus responsible in picture 1b is the yeast *Candida albicans.*

Dermatophyte nail infections commonly follow chronic tinea pedis (athlete's foot). The nail eventually becomes friable and crumbles away.

Candidal nail infections are more common in women. They begin with tenderness of the nail fold. Secondary bacterial infection is common. The nails become thickened with transverse ridges, and the curve of the nail may increase. In immune deficient patients the infection may spread to involve the soft tissues of the finger.

Question and examine the patient for signs of fungal infection in other areas.

People infected with HIV are vulnerable to a variety of fungal infections. Tinea capitis, tinea pedis and candidiasis in skin folds all occur.

The condition of fungal mycetoma of the foot (Madura foot) may be worse when the patient is infected with HIV. Clotrimazole and ketaconazole combined with surgery can provide a cure.

Fungi, and most other organisms associated with opportunistic infection, themselves have an immunosuppressive effect on the host.

Further Information

Diagnosis

Cut small pieces of nail with scissors or scalpel. Soften the keratin on a glass slide with potassium hydroxide solution. You can then see the characteristic segmented hyphae under the microscope.

Treatment

Because the nail does not absorb drugs it is necessary to treat dermatophyte infection with oral griseofulvin for several months. If severe it may be easier to remove the nail under general anaesthetic and treat the interdigital skin with local application of an anti fungal cream (eg an imidazole such as clotrimazole) or Gentian Violet paint.

Nystatin solution or clotrimazole is an effective treatment for candidal nail infections. Gentian violet is a useful alternative.

In HIV infected patients there may be little response to treatment.

Slide 16.3 Folliculitis

Picture 3 shows the upper part of the chest of a patient with AIDS.

Q. What abnormality do you notice on the skin?

A. There is a fine papular rash.

This kind of rash is often found in patients with HIV infection. The commonest sites are the chest, the upper arms, the neck, the face, the scalp, the axilla and the thighs. It is itchy.

Below there is a close up picture of the same patient's skin.

Q. What does this tell you about the nature of the rash?

A. You can see that the hair follicles are inflamed, so the rash is a folliculitis. But there is little redness around the follicles, and the inflammation is not severe.

This kind of folliculitis is not usually caused by bacteria. It is caused by organisms such as the yeast ***Pytyrosporum orbiculare.***

Penicillium marneffei is a yeast which can cause folliculitis but may also disseminate through the body when immunity is low. There are reports of several HIV infected patients in Hong Kong with disseminated P. marneffei infection. This may become an important disease in HIV infected patients in South East Asia.

Slide 17.1 Seborrhoeic dermatitis

The man in picture 1 presented with an itchy rash on his face. He felt well, but the history revealed that both his wife and his two year old child were ill with loss of weight, fever and diarrhoea.

Q. What do you notice about the skin on his cheeks?

A. He has a hyper pigmented raised area on the lower part of both cheeks.

The rash is itchy, and it affects his face, neck, groin and axillae. It is called "seborrhoeic", although the term refers more to the appearance and distribution of the rash than to the cause. Sometimes there are scales and papules or pustules. Seborrhoeic dermatitis can be difficult to distinguish from psoriasis. Seborrhoeic dermatitis is common in patients with HIV infection. It is also common in the general population. The dermatitis tends to become more severe, with thick scales, as immunosuppression worsens.

On examination he also had generalised lymphadenopathy and scars from recent herpes zoster. The man and his wife were counselled and found to be infected with HIV. A community health worker provided support and advice.

Slide 17.2 Psoriasis

In picture 2 we see large "discoid" lesions with clear margins and white scales on the elbow and lower arm of a young man. He complained that these lesions, which were not itchy, had developed two weeks ago.

Q. What is the diagnosis?

A. This is psoriasis.

Psoriasis is a disorder in which there is loss of control of normal epidermal cell turnover. People with HIV infection may develop psoriasis rapidly. There may be the typical discoid scaly plaques, or acute pustular psoriasis. Associated arthritis may occur, especially of the joints of the fingers and toes. The fingernails may show "thimble" pitting.

Spontaneous remission of psoriasis may occur in the terminal stage of AIDS.

Further Information
Treatment
Seborrhoeic dermatitis and psoriasis usually respond well to steroid creams such as hydrocortisone 1%. An antifungal imidazole cream may be helpful for seborrhoeic dermatitis in addition to the steroid cream.

Methotrexate should not be used to treat psoriasis in patients with HIV infection because it suppresses immunity.

Slide 18 Florid rash of secondary syphilis

This man has had this rash for one month. It was not itchy or painful. He complained of genital sores, and said that he had had "chickenpox" five weeks ago.

Q. What lesions can you see?

A. There are pale plaque like lesions all over his back and both arms.

He had plaques like this all over his face and body. The lesions developed from a pustular rash, similar to chicken pox. He had florid condylomata lata in the peri-anal area.

Q. What do you think the diagnosis could be?

A. Clinically he appears to have secondary syphilis.

Serological testing showed that his VDRL test for syphilis antibodies was negative. His ELISA test for HIV antibodies was positive.

Q. Can you explain these findings?

A. He has HIV infection, which is associated with a history of genital ulceration and sexually transmitted diseases. He also has syphilis, but his immune response is impaired because of the HIV infection, so he has not made antibodies to syphilis.

However people with HIV infection do not always have negative syphilis serology.

Secondary syphilis has a wide variety of manifestations. In patients with HIV infection, lesions such as skin rashes and condylomata lata may be more florid than usual, as in this man. There is some evidence that progression to neurosyphilis may be more common in HIV infection.

There is no evidence to suggest that syphilis causes progression of HIV disease.

Further Information

Diagnosis: There is no simple culture system for *Treponema pallidum*. The organisms may be identified from early lesions with dark field microscopy. But often serological tests are necessary for diagnosis. HIV infected patients may have false negative non-treponemal tests, such as VDRL, despite active syphilis. Specific syphilis tests such as the fluorescent treponemal antibody absorption test (FTA-ABS), may become negative in 10% of AIDS patients. RPRs may be extremely high in HIV infected patients compared to uninfected patients with syphilis.

Neurosyphilis: consider neurosyphilis in any HIV infected patient who develops acute meningitis, neuroretinitis, deafness, blindness, other cranial nerve abnormalities or stroke.

Treatment: Procaine penicillin 1.5g im daily for 10 - 14 days with probenecid 500mgs qds orally
or
Benzathine penicillin 2.4 million units weekly for three weeks.
Neurosyphilis: Penicillin G 2-4 million units 4 hourly, iv, for 15 days.
Remember to treat the sexual partner / s.

Summary

Skin rashes are an important feature of both AIDS and HIV related illness. A maculopapular roseola - like eruption may occur with the seroconversion illness. It usually disappears within 2 weeks.

Skin manifestations may be due to neoplastic disease, especially Kaposi sarcoma, or they may be of an inflammatory nature. These include drug reactions, and dermatoses such as seborrhoeic dermatitis and psoriasis.
Generalised dry skin is a common problem in HIV infection. It is often very itchy. Acquired ichthyosis is common, especially on the legs.

Slide 19 Genital warts

This slide shows the genitals of a woman and a man, who both have decreased immunity due to HIV and the same genital infection.

Q. What causes these lesions?

A. These lesions are genital warts caused by the *Human Papilloma Virus* (HPV).

HPV infection is very common. When immunity decreases due to HIV, warts tend to grow rapidly and become florid.

Further Information
Treatment
Apply podophyllum in a concentration of 10 to 25% in Tinct. Benz. Co. carefully to the warts only. Wash off after 4 hours.
Freezing with liquid nitrogen is also effective. Some doctors use cautery with diathermy.

Slide 20.1 Genital herpes simplex

Picture 1 shows the vulva of a woman with HIV related disease.

Q. What abnormalities do you notice?

A. There are many superficial ulcers. The mucosa and surrounding skin is red and inflamed. There is a moist exudate from the ulcers.

Q. What is the cause of the ulcers?

A. *Herpes simplex* virus.

Women with immunodeficiency due to HIV infection may present with severe, chronic or recurrent genital herpes simplex. Because herpes simplex can be fatal to newborn babies, Caesarean section is indicated when a pregnant woman has active genital herpes at term.

Further Information

Treatment
Oral acyclovir is effective treatment, but very expensive, and not widely available. Genital herpes is a very painful condition so analgesia is important. Cleanliness and a local antiseptic such as chlorhexidine cream help to prevent secondary bacterial infection.

Slide 20.2 Vaginal candidiasis

Picture 2 shows the cervix of an HIV infected woman, seen with the aid of a speculum.

Q. What abnormalities do you notice?

A. There is a thick white exudate on the cervix and right vaginal wall. The cervix is inflamed.

Q. What is the diagnosis?

A. Vaginal candidiasis (thrush) and cervicitis.

This woman's cervix was friable - that is it bled when gently wiped with a swab. Notice that she also has warts around her anus.

Vaginal candidiasis is an early feature of symptomatic HIV infection in women. Of course, vaginal candidiasis is a common condition in otherwise healthy women. Predisposing factors include antibiotic therapy, pregnancy, the contraceptive pill and diabetes.

Further information

Treatment
If possible, treat both partners, because candida can be spread by intercourse. There are several effective topical applications: clotrimazole, econazole, miconazole and nystatin. One effective regime is one nystatin pessary (100,000 Units) or nystatin cream (100,000 Units/4g) inserted high into the vagina once daily for 7 days. If these pessaries or creams are not available, the vagina can be painted with Gentian violet daily. Warn patients that Gentian violet stains clothes. If topical treatment fails it may be necessary to prescribe oral nystatin 500,000 Units 3 times daily for 10 days.

Slide 21.1 Cervical neoplasia

Picture 1 shows the cervix of an HIV infected woman magnified at colposcopy. It has been painted with dilute acetic acid.

Q. What do you notice about the appearance of the cervix?

A. There is a lesion around the os. This is an area of abnormal cells which contains some cells which are malignant.

These abnormal cells show up more clearly when painted with acetic acid. A biopsy of this area later showed early invasive carcinoma.

Q. What virus is associated with the development of carcinoma of the cervix?

A. *Human Papilloma Virus* (HPV).

There is a high prevalence of HPV infection in HIV infected women. In countries where cervical cytology screening is performed gynaecologists have found that HIV infected women have a much higher incidence of abnormal and malignant cells.

Women with more advanced HIV related disease are more likely to have cervical abnormalities. HIV infection seems to make it more likely that HPV infection of the cervix will lead to malignancy.

If possible, HIV infected women should be offered a smear for cervical cytology every six months.

Slide 21.2 Pelvic Inflammatory Disease

Meena presented with a history of lower abdominal pain, backache, fever and vaginal discharge for a week. On examination she was tender on both sides of her abdomen.

On speculum examination there was pus discharging through the os of the cervix, as you see in picture 2. When the cervix was tipped with the examiner's finger Meena complained of pain, and she was tender in both fornices.

Q. What is the diagnosis?

A. Pelvic inflammatory disease.

Pelvic inflammatory disease, is more common and more severe in HIV infected women. Gonorrhoea and chlamydia are the most common causes, but other organisms may be involved, including anaerobes. Early treatment is important to prevent complications and chronic infection.

Further Information

Treatment of pelvic inflammatory disease
Treatment needs to cover a broad range of organisms. Several regimes are suitable. An acceptable regime is ampicillin 500 mgs orally 8 hourly or erythromycin 500mgs orally 6 hourly, together with metronidazole 400 mgs orally, 12 hourly with food, all for 14 days. Analgesics, fluids and rest are also important. If the patient is very ill give intravenous antibiotics in hospital. If you suspect septicaemia, add gentamicin to the regime.

Slide 21 Further Information (continued)

Data from Bombay

Cervical intraepithelial neoplasia (CIN) and cytological manifestations of five sexually transmitted diseases were studied in Pap smears from 568 sex workers in Bombay, India. HIV antibody was positive in 24.1%. CIN was present in 30.7% of the HIV seropositive sex workers compared to 17.4% of HIV seronegative cases ($p < 0.05$). Cytological features of trichomonas vaginitis, candidiasis, bacterial vaginosis, herpes simplex virus, and human papilloma virus infections were observed more frequently in HIV seropositive women. CIN and STDs were significantly more common in sex workers than in women attending a Family Planning clinic.

Summary

Many studies show that HIV infected women have a high risk of treatable gynaecological conditions. Urinary tract infections are also more common. Always ask HIV seropositive women about gynaecological and urinary symptoms and examine them carefully.

Women are sometimes treated for vaginal candidiasis when they complain of vulval itchiness and irritation, without examination. It is important to examine thoroughly women who complain of a discharge. Proper exposure, usually in the dorsal position, with a good light to view the vulva, introitus, urethra, vagina and cervix is essential. Discharges due to Neisseria gonorrhoea, Trichomonas vaginalis, and Gardnerella vaginalis have all been found to be more common in HIV infected women.

Amenorrhoea may occur in HIV infection, as in any debilitating illness. Stress associated with the diagnosis may lead to menstrual irregularities, but most studies have not found menstrual abnormalities to be a feature of HIV infection.

In some parts of Asia it is a common practice for women to insert objects such as leaves or cloths into their vagina. This practice often results in infections and inflammation which will make the woman more vulnerable to infection with HIV. Explain this to your patients. Teach them that vulval hygiene is important but that the vagina itself is self-cleaning. Cloths or cotton wool put in the vagina at menstruation should be very clean.

Slide 22 Cytomegalovirus chorioretinitis

This slide shows the retina of a patient with AIDS. He complained of blurred vision, and that he saw dots floating in front of his left eye. His eye was not painful. On examination the doctor found blind spots in his visual fields.

Q. What is the appearance on fundoscopy?

A. There are creamy white granular areas with exudates and perivascular haemorrhages.

This appearance is sometimes called "cottage cheese (curd) and tomato sauce".

The right eye was normal. Unfortunately the retinitis progressed with necrosis of the retina and the patient lost the sight of the left eye.

Chorioretinitis due to *cytomegalovirus* is the most common severe ocular complication of HIV infection. It is usually a late complication when the white (CD4) cell count is very low.

Without treatment CMV retinitis causes blindness in a few weeks. *Toxoplasma* and *Candida albicans* retinitis may look like CMV retinitis.

HIV infected patients suffer a variety of eye problems which include dry eyes, conjunctivitis and early presbyopia. They may have eye disease that does not cause symptoms so examination of the eyes is important.

Further information

Treatment

The antiviral drug ganciclovir is effective but it is very expensive and not widely available. The initial dose of ganciclovir is 5 mgs / Kg iv 12 hourly for 10 - 14 days, followed by maintenance therapy of 30 mgs / kg / week in 3 or 5 divided doses. The relapse rate is very high without maintenance therapy.

HIV can infect the glial cells in the central nervous system and cause neurological problems. The CNS may also be affected by opportunistic infections and tumours. Neurological manifestations usually occur late in the course of HIV infection. Dementia is the commonest problem, but almost any neurological symptoms may occur. If a patient presents with any unexplained neurological signs or symptoms, suspect HIV infection, examine the patient for other signs of infection, and test for HIV antibodies.

Psychiatric disorders are an important differential diagnosis in neurological disease. Organic and psychiatric disease often occur together.

Slide 23 HIV neurological disease

This young woman has HIV infection. The virus has infected her nerve cells. She needs to lean on her helper because she has poor balance and her legs are weak. Her gait is wide based and ataxic, and she has a tremor. She is suffering from HIV related dementia, which is common in HIV infected people.

The first symptoms that she noticed were forgetfulness, loss of concentration and slowness of thought. She felt depressed. On examination she has brisk reflexes and leg weakness. The condition may progress slowly or rapidly to severe dementia. The patient eventually becomes bedridden and incontinent.

Q. What abnormalities can you see in the CT scan of her brain?

A. This CT scan shows cortical cerebral atrophy. The ventricles are enlarged.

The EEG shows diffuse bilateral slowing.

Further Information

Other neurological conditions due to HIV: HIV may directly infect the spinal cord so **myelopathy** is often associated with HIV dementia. Symptoms are paraesthesia and leg weakness. Signs include paraparesis with or without spasticity and ataxia.

Peripheral neuropathy is a common neurological disorder in AIDS. The most common pattern is a symmetrical, distal, sensory neuropathy which is often painful. Mononeuritis and the Guillain-Barre syndrome may occur.

The combination of peripheral neuropathy and myelopathy can lead to an extensor plantar response with absent ankle jerks. This is classical of Vitamin B12 deficiency - it is now classical of HIV disease.

Acute neurological manifestations may occur at the time of seroconversion. These include acute neuropathies with motor and sensory impairment of arms and legs; acute meningitis; and acute encephalopathy - fever, malaise, changes of mood and fits, with recovery after one week.

Patients with atypical aseptic meningitis present with headache, fever and meningeal signs. They may also have involvement of cranial nerves, most commonly the fifth, seventh and eighth cranial nerves. The meningitis may recur or be chronic.

The **autonomic nervous system** is often damaged in people with HIV related illness.

Figure 5. The first symptoms of HIV dementia are loss of concentration and poor memory

Slide 24.1 Bell's palsy

This woman presented because her family had told her that she looked strange.

Q. What is wrong with her face?

A. She has a facial palsy.

On examination she also had generalised lymphadenopathy and oral candidiasis. These three "clues" alerted the doctor to the possibility of HIV infection. He counselled the woman, and with her consent, tested her blood for HIV antibodies. The result was positive.

Bell's palsy occurs early in the course of HIV infection, often when immune function is normal. The palsy usually recovers after a few weeks.

Slide 24.2 Opportunistic infections

This computerised tomography (CT) scan is from another patient. This patient had received an injection of contrast media before the scan.

Q. What abnormality do you notice?

A. There is a focal lesion with contrast enhancement which suggests a walled cyst.

Q. What might cause a focal cerebral lesion like this?

A. This is toxoplasmosis. It might also be a tuberculoma or a cerebral abscess.

Cerebral toxoplasmosis is usually a reactivation of a previous infection, so most patients are already seropositive and do not develop rising titres of antibodies. The clinical features are headache, fever, seizures and focal neurological signs. Diagnosis is on clinical grounds.

Cryptococcal meningitis may also present with headache. *Cryptococcus neoformans* is the commonest opportunistic pathogen to infect the brain. Cryptococcal meningitis occurs late in the course of HIV disease.

Headache and decreased conscious level are common but focal signs and neck stiffness are uncommon so it is important to think of the diagnosis. The organism may also disseminate to the lungs, kidneys, skin, fundi and other organs.

Further Information

Diagnosis of cryptococcal meningitis

India Ink staining of the CSF t0o show encapsulated yeasts has been found to be both a sensitive and specific diagnostic test. The cryptococcal antigen titre test has superior sensitivity. The organism may also be cultured from CSF. The CSF may be normal or may show mild pleocytosis, lowered glucose and raised protein.

Treatment

Toxoplasmosis:
Pyrimethamine 50 - 100 mg loading dose, then 25 - 50 mgs orally daily +
Sulphadiazine 1 gram 6 hourly orally or intravenously.

Cryptococcus:
The outcome of cryptococcal meningitis is improved if a combination of Amphotericin and Flucytosine is used as intial therapy and Fluconazole is reserved for maintenance.

Initial therapy:

1. Amphotericin B 0.7 mgs/Kg/day iv for one week, after a 1 mg test dose.
2. Amphotericin B 0.7 mgs/Kg iv three times a week after the first week, for a further 4 - 6 weeks depending on response.
3. Flucytosine 100 mgs/Kg/day or iv in 3-4 divided doses for the duration of Amphotericin B therapy.

Maintenance therapy:
Fluconazole 400 mgs/day orally for 4 - 6 weeks, until 10 weeks from the start of therapy.

Review of history and examination

You have seen that many of the signs and symptoms of HIV infection are non-specific. It is important to be alert to the possibility of HIV infection in anyone who presents with any of the signs or symptoms mentioned.

Always take a careful history from the patient.

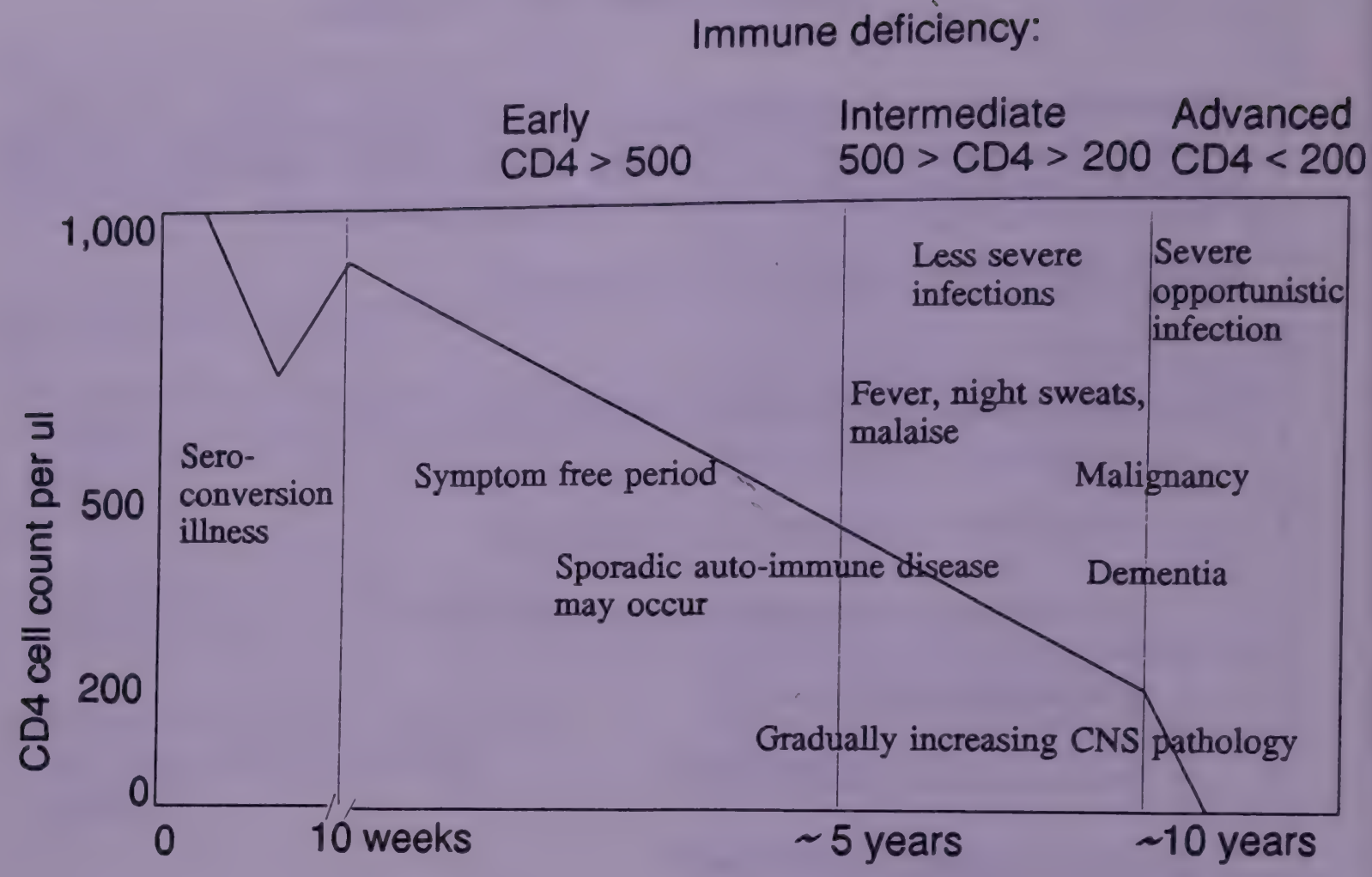
Q. What specific questions will you ask?

A.
- Do you have a cough? fever? diarrhoea?
- How long have you had these symptoms for?
- Do you have night sweats?
- Have you been losing weight?
- Have you been feeling weak?
- Have you had any rashes or itchiness?
- Have you had sores on the genitals in the previous six months?
- How is your spouse / partner?
- How is your baby?

You must also examine the patient carefully, particularly

- the skin;
- the neck, axillae and elbows for enlarged nodes;
- the eyes;
- the mouth;
- the chest;
- abdomen; and
- genitals.

CHRONOLOGY OF HIV RELATED ILLNESS



US Center for Disease Control Classification (1986)

Group I: Acute Infection

Group II: Asymptomatic Infection

Group III: Persistent generalised lymphadenopathy

Group IV: Other Disease -

IVA: Constitutional disease
IVB: Neurological disease
IVC: Secondary infectious diseases
- CI Specified secondary infectious diseases listed in the CDC surveillance for AIDS
- C2 Other specified secondary infectious diseases

IVD: Secondary cancers
IVE: Other conditions

APPENDIX 1 Other manifestations

Haematological problems

Haematological problems, especially anaemia, are common in HIV infection. Lymphocytes, neutrophils, and thrombocytes often decrease in numbers.

Thrombocytopenia is a common early problem in HIV infection. It is due to a variety of autoimmune mechanisms. The decrease in number of platelets is usually moderate and often temporary. However a few patients drop their platelet counts very low which results in severe spontaneous bleeds. In these patients splenectomy may be helpful. Treatment with steroids is dangerous because they further depress the immune system. HIV associated thrombocytopenia may involve not only peripheral destruction of platelets but also primary suppression of megakaryocytes.

Serum electrolytes may be disturbed. Hyponatraemia in AIDS patients is common. It is usually a result of inappropriate antidiuretic hormone secretion associated with pulmonary and CNS disease. The adrenal glands may be directly affected by HIV. CMV and mycobacteria can also infect the adrenals. Some HIV infected patients have impaired responsiveness of the pituitary - renal axis.

Musculoskeletal manifestations

Polyarthralgia: General joint pains may occur at the time of seroconversion, and are common in established HIV infection. The knees, shoulders and elbows are usually affected. The pain is not severe.

HIV-associated arthritis usually involves the knees and ankles, and is asymmetrical. There is pain and inflammation which responds to intra-articular injections of corticosteroids. It is important to exclude septic arthritis before treatment. People with HIV infection may develop joint infections due to a number of organisms including bacteria, fungi or mycobacteria.

Sometimes an HIV infected patient may present with sudden onset of very severe pain in a joint without any signs of inflammation. The painful attack may last for a few hours or a few days. It is called "lightning pain" syndrome.

Rieter's syndrome - arthropathy, urethritis/cervicitis, conjunctivitis and mouth ulcers - may occur early or late in HIV infection.

Polymyositis - Sometimes HIV infected patients present with proximal muscle weakness and muscle pain, with raised serum creatine kinase.

Cardiac manifestations

Myocarditis is often found at post mortem examination. Early lesions (deposits) in the coronary arteries have been reported. Cardiomyopathy and exercise dysfunction may occur.

Psychiatric problems

Psychological distress and psychiatric disorder are common in persons with HIV infection. An individual's emotional reaction to the diagnosis of HIV infection will depend on many factors. These include the extent of his or her knowledge about the virus, and cultural and religious attitudes towards disease causation.

Appropriate counselling before and after the HIV antibody test are essential and help to prevent psychiatric complications. Distress at the diagnosis may cause major depression, persistent agitation, sleep disturbance, suicidal ideas, and excessive guilt and remorse. Mood change may indicate the onset of a major depressive syndrome, or it may be a manifestation of the CNS complications of HIV.

Repeated episodes of anxiety, grief and traumatic stress reactions may occur as physical health deteriorates. Anxieties about death may be present even in the early stages of infection. These need to be sensitively discussed with the patient.

If an HIV infected person receives treatment for depression with tricyclic depressants, give a lower dose than normal because these patients may have more severe anticholinergic effects than expected.

APPENDIX 2 Management

Management of patients with HIV infection presents many difficulties. Although there is no cure for the disease, people with HIV can be helped a lot with symptomatic treatment, support and skilled counselling. These services require time, staff and money, which are always limited. It is necessary to develop management policies so that the best use can be made of the resources available.

In many countries the prevalence of HIV infection is increasing rapidly. It is difficult to predict the increase in workload on health services, but it is likely to be large. Patients with AIDS will require frequent admission to hospital. Many more patients will present as out patients with HIV related signs and symptoms. It is necessary for health service planners to prepare policies for different contingencies. Encourage discussion of the following issues.

Counselling

This is an extremely important part of management of patients with HIV infection. The subject is discussed in another slide set, although slides are not an ideal medium for teaching it. Other useful resources on the subject of counselling are shown in Appendix 4.

Symptomatic treatment

Reassure patients that, although there is at present no cure for the underlying illness, you are able to treat their symptoms. Specific treatment for certain clinical manifestations is described in Further Information sections.

Other treatments include:

- Chlorpheniramine for itching and drug reactions
- Calamine lotion for itchy rashes
- Prochlorperazine for vomiting
- Oral rehydration fluids for diarrhoea
- Analgesics for pain
- Aspirin or paracetamol for fever.
- Loperamide for diarrhoea

Discussion Point

Drugs may be in short supply. Standard treatment policies, based on the principles of rational, economic prescribing, need to be worked out. Choose some of the conditions illustrated in the slides and work out standard treatment plans for them, according to drug availability in your country.

Nursing care

Good nursing care helps patients very much: for example, frequent mouth washes and fresh bed linen after night sweats. Nursing care needs to include sympathetic psychological support for patients who often feel frightened.

Follow up

Arrange to see patients at regular intervals as outpatients. Ask about medical, social and psychological problems. From time to time people with AIDS are likely to need readmission. Try to keep admissions short so that the patient has as much time as possible at home, and so that beds remain available for other patients.

The demand for inpatient care is likely to increase. You may need to have a policy about when to admit patients, and where to care for patients who are terminally ill. Surveys in Zambia in 1990 showed that HIV related conditions accounted for between 30 and 70% of all inpatient admissions. In areas with a high prevalence patients with HIV related disease overwhelm hospital resources. Other health programmes suffer. It is necessary to find other ways to care for AIDS patients.

In Zambia health care workers have found that home-based care is appropriate and acceptable. Most patients prefer to be looked after at home. A home care team visit AIDS patients and their families. They give support and encouragement, and provide treatment for any symptoms. They may also give food and bedding. When a patient receives a visit from the AIDS home care team, the family and neighbours know that the patient has AIDS. But in Zambia stigmatisation has not been a problem.

Figure 6. Most patients prefer to be looked after at home.

Visits to families from the team make the community aware that AIDS is a problem in their area. This leads to useful community discussion about the need for behaviour change. Experience has shown that there is a strong link between home care and community action to prevent the spread of HIV.

In many towns in sub-Saharan African countries community volunteers have formed their own HIV care, prevention and support groups. Sometimes this activity brings together people who would not otherwise meet.

Discussion Point

The success of a home based care policy will depend on local factors which include religious and cultural attitudes, resources in the community and availability of support services. Discuss the possibility of home based care in your local area. What would be the obstacles? What factors would help?

Support services

It is important to establish good communication between health services and support services. In countries with a high prevalence of seropositivity, the need for both services will increase, by patients themselves, and by their dependent families.

Confidentiality

AIDS is a disease which carries a stigma. We must make efforts through education, and through our own behaviour, to reduce this stigma. It is also important to ensure that the patient's diagnosis remains confidential. You may find it helpful to arrange staff meetings to discuss how you can improve confidentiality at your hospital or clinic. Involve all the staff - porters and clerks may have access to

confidential information. Discuss with them the importance of confidentiality. Ensure that patients notes are secure. Do not leave notes out on patient's beds in the ward because visitors or other patients may read them. Explain to patients that their records are private, including those that they keep themselves, such as outpatient records. They are not obliged to show them to employers or anyone else.

Discussion Point

What information should be recorded on outpatient cards? These cards are essential for communication between health care workers who may see a patient on different occasions. It is necessary to communicate the fact that the patient has been tested for HIV, and whether or not they have been counselled. However if information on HIV status is recorded on patient held records the patient is at risk of exposure of his or her HIV status. Could symbols or codes be used to record: "blood taken for HIV antibody test", "HIV antibody positive" and " counselled about HIV infection"? Could a separate card be used for information about HIV? Would any of these methods succeed for long, or would the public soon learn about them?

APPENDIX 3 HIV infection and tropical diseases

There is little information about the relationship between HIV infection and tropical diseases. It is still not clear why some organisms behave as "opportunistic" pathogens in HIV infected people, and others do not. It is important to keep detailed records to increase our knowledge.

Malaria

Fortunately studies show that HIV does not damage immune responses to malaria at any stage of life. A study in Lusaka, Zambia, of cerebral malaria in HIV infected patients concluded that the outcome of cerebral malaria is not affected by HIV infection. Also, malaria does not accelerate the course of HIV related disease.

However there is an indirect association between these diseases because malaria is the most common cause of anaemia that requires blood transfusion. Contaminated blood transfusions lead to infection with HIV.

Leishmaniasis

Visceral leishmaniasis (kala azar) is a protozoal disease which has a clear association with HIV infection. Leishmania amastigotes multiply in macrophages, which are also HIV target cells in the early stages of viral infection. Therefore one infection may increase vulnerability to the other. It is important to maintain a register for potential HIV/leishmania co-infection patients.

In those with both HIV and leishmaniasis, splenomegaly is less frequent, and antibodies to Leishmania donovani are often absent. Leishmaniasis may occur at any stage of HIV infection and is likely to be recurrent. Clinicians with experience suggest that it is necessary to treat visceral leishmaniasis in people with HIV with aggressive regimens, high doses and long courses of therapy. Prophylaxis may be necessary to prevent recurrence. Antimonial compounds are the drug of first choice. Pentamidine, amphotericin B, allopurinol, and interferon gamma are other effective treatments.

In endemic areas, consider the diagnosis of visceral leishmaniasis in every HIV-1 infected patient with fever, hepatosplenomegaly or haematological abnormalities.

Trypanosomiasis

Studies have found no association between HIV seropositivity and antibodies against Trypanosoma brucei, and there are no case reports of increased susceptibility to sleeping sickness in HIV infected people.

Leprosy

A large study in Malawi has not found leprosy to be more common in people infected with HIV than in others. However leprosy has a long incubation period (2 - 5 years for paucibacillary disease and 8 - 12 years for multibacillary disease). So it is possible that the patient will die of HIV related illness before there are clinical effects from Mycobacteria leprae.

The cell mediated immune system is decreased in patients with lepromatous leprosy. Evidence from India shows that in a co-infection with HIV, the lesions may be florid, progressive and highly resistant to antileprotic therapy.

Tuberculoid leprosy patients have strong immune resistance. This is shown by positive skin tests and in vitro lymphocyte transformation to Mycobacteria leprae. Because HIV damages this cell-mediated immune resistance it may act as a trigger to convert patients with tuberculoid to lepromatous leprosy.

Yaws, Bejel and Pinta

Yaws is a disfiguring and disabling non-venereal "endemic treponematosis". It is caused by a spirochaete of the same family as the organism that causes syphilis. It used to be one of the most common skin diseases in tropical countries until mass treatment campaigns in the 1950s and 60s dramatically reduced its incidence. Nevertheless endemic foci of yaws, and the other treponematoses, bejel and pinta, remain. Recently there has been a resurgence in several parts of the world, including South East Asia and the western Pacific. Yaws is found in rural areas among people who live in poor hygienic conditions, with little or no access to health services. Dutch authors who describe an outbreak of yaws in Indonesia are worried that the rapid spread of HIV infection may increase the spread and severity of yaws. They fear that immunodeficiency would reactivate latent treponemal infections in the same way as tuberculosis.

Typhoid

In endemic areas the incidence of Salmonella typhi and Salmonella paratyphi infection in patients with HIV is much higher than in the general population. They commonly cause fulminant diarrhoea, colitis, collapse and death in patients with HIV infection.

Helminths

There do not appear to be interactions between HIV infection and helminthic diseases. Disseminated strongyloidiasis may occur in advanced immune deficiency but seems to be uncommon.

APPENDIX 4 Resource List

The AIDS Education and Health Promotion Material Exchange Centre for Asia and the Pacific

Because AIDS is still a new disease in Asia it is important that health care workers share their experiences and knowledge of caring for HIV infected patients. This centre aims to promote the flow, exchange and use of AIDS education and health promotion materials. This will support and strengthen the planning, management and implementation of AIDS programmes in Asian and Pacific countries. It serves as a regional resource base and exchange centre which responds to requests for AIDS education materials and information.

PO Box 967,
Prakanong Post Office,
Bangkok 10110,
Thailand.

The following materials are available from TALC:

Strategies for Hope - a series of case studies of innovative AIDS control and prevention programmes, produced by Action Aid and AMREF, Kenya

Booklets:

1. From Fear to Hope: AIDS care and prevention at Chikankata Hospital, Zambia

2. Living positively with AIDS: The AIDS Support Organisation (TASO), Uganda

3. AIDS management: An integrated approach

4. Meeting AIDS with Compassion. AIDS care and prevention in Agomanya, Ghana.

5. AIDS orphans: A community perspective from Tanzania.

6. The Caring Community

7. All Against AIDS

Price: £2.00 per copy (including p & p)

Videos:

1. TASO: Living positively with AIDS

This training video illustrates the care, support and counselling of people with HIV infection provided by the AIDS Support Organisation in Uganda.

2. The Orphan Generation

Slide sets:

HIV infection
- Virology and Transmission (1989)
- Clinical Manifestations (1989)
- Prevention and Counselling (1989)
(appropriate for countries in Africa)

HIV infection in children 48 slides and text (1992)

Books:

Clinical Tuberculosis by John Crofton, Norman Horne and Fred Miller

The AIDS Handbook by John Hubley, Chandra Mouli and Shankar Choudhary

Preventing a Crisis by Gill Gordon and Tony Klouda

Guidelines from the WHO Global programme on AIDS:

Clinical guidelines

WHO have developed clinical guidelines for management of patients infected with HIV. They hope that these guidelines will be used as a model for countries to develop their own national treatment norms. The guidelines address three levels of health care facilities: health centres, district and referral hospitals. There is also a "Facilitator Guide" which outlines the process of adapting GPA's guidelines for local use, and an "Estimator for Drug Requirements"

Guidelines for counselling about HIV infection and disease

WHO AIDS series. Prepared in consultation with many counsellors, health educators and persons with HIV infection. Its 8 chapters cover HIV infection, the nature and functions of counselling, its requirements before and after testing, and special issues such as pregnancy and children.

Guidelines for Maternal and Child Health and Family Planning Programme Managers

October 1990 monograph developed by the Division of Family Health and the Global programme on AIDS of WHO.

All available from WHO, GPA, CH 1211 Geneva 27, Switzerland.

Newsletters:

- *Pacific AIDS Alert bulletin*

South Pacific Commission, Pacific Islands AIDS and STD Prevention Programme, BP D5, Noumea, Cedex, New Caledonia.

- *AIDS Action*

(in English, French and Portuguese) AHRTAG, 1 London Bridge Street, London SE1 9SG, UK. Free of charge

- *AIDS Watch*

(quarterly in English, French and Spanish) IPPF (Distribution Unit), PO Box 759, London NW1 4LQ, UK Free of charge

- *World AIDS*

Panos Institute, 9 White Lion Street, London, N1 9PD, UK. £12 per year (six issues)

- *AIDS Health Promotion Exchange*

A WHO forum for health educators. To be added to the mailing list, write to WHO,GPA, CH 1211 Geneva 27, Switzerland.

- *Global AIDS news*

WHO newsletter, available in English and French, quarterly, free of charge. Write to WHO,GPA.

The Population and Community Development Association of Thailand has a useful set of slides for teaching health workers, teachers and others about HIV infection. 8 Suukhumvit Soi 12 Bangkok 10110 Thailand

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AIDS: THE KILLER DISEASE
Voluntary Health Association of India

Health for the Millions Special Issue August 1991 Vol XVII No 4

HIV and AIDS in Asia and the Pacific
AIDS Care Special Issue: Vol 5 No 3 1993

ABC of AIDS
Edited by Michael Adler.
Published by the British Medical Journal, BMA House, Tavistock Square, London WC1H 9JR, UK. Price 12.50.

AIDS Action Now: Information, prevention and support in Zimbabwe.
Helen Jackson
AIDS Counselling Trust, Harare, Zimbabwe

Triple Jeopardy: Women and AIDS
A book which explores the implications of the HIV epidemic for women, children and families. It has contributions from women from many countries around the world.

Available from the Panos Institute, 9 White Lion Street, London, N1 9PD, UK. £6.95 (free to those working in AIDS in developing countries)
UK NGO AIDS Consortium guide to funding agencies.

We miss you all. Noerine Kaleeba: AIDS in the Family
Available from: Women and AIDS Support Network Book Project, PO Box HG 54, Highlands, Harare, Zimbabwe. Price: within Africa: US $5, outside Africa: US$10.

AIDS - A Guide to clinical counselling
Riva Miller and Robert Bor Cambridge Medical Books, Tracey Hall, Cockburn Street, Cambridge CB1 3NB, UK. Price: 14.50

Counselling makes a difference
Population Reports Series J, No 35 November 1987, Johns Hopkins University, 624 North Broadway, Baltimore, Maryland MD21205, USA.

International HIV/AIDS and STD clinical training course

The University of Washington in collaboration with Infectious Disease society of America and WHO. Further information from: Caroline Ryan, University of Washington, 1001 Broadway, Suite 217, Seattle 98122, USA

HIV Handbook: A manual for clinicians working with HIV infection. Fairfield Hospital Edited by Francis Bowden. Available from: Fairfield Hospital, Yarra Bend Road, Fairfield, 3078, Victoria, Australia.
A useful and clear book - although many of the investigations and drugs mentioned will not be available in many Asian countries.
